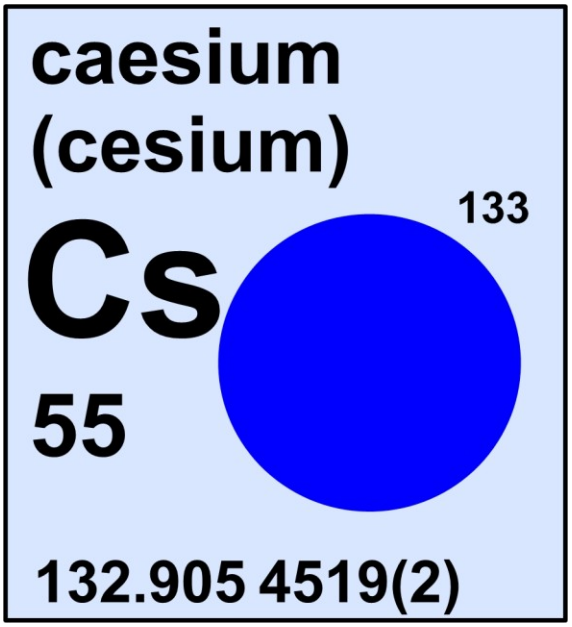
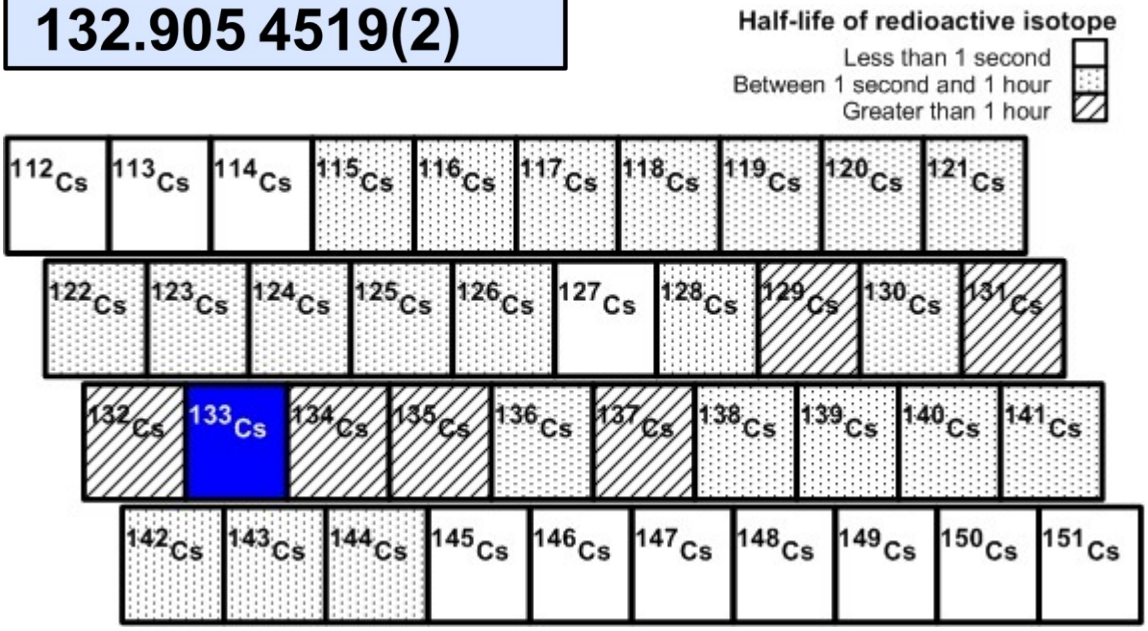
caesium (cesium)



Stable isotope	Atomic mass*	Mole fraction
^{133}Cs	132.905 4519	1.0000

* Atomic mass given in unified atomic mass units, u.



Important applications of stable and/or radioactive isotopes

Isotopes as environmental tracers

1) Nuclear fission of ^{235}U (or other fissile material) yields ^{137}Cs as a product. This isotope, though not present naturally, can be collected from nuclear reactor processing and used as an environmental tracer. ^{137}Cs adheres tightly to porous sediments and will follow the movement of the sediment. By using gamma ray spectrometry, the activity of the cesium can be measured and movement of the sediments easily determined. Cesium can also be followed in fungal mycelia allowing the tracing of mushrooms in the environment to be traced.

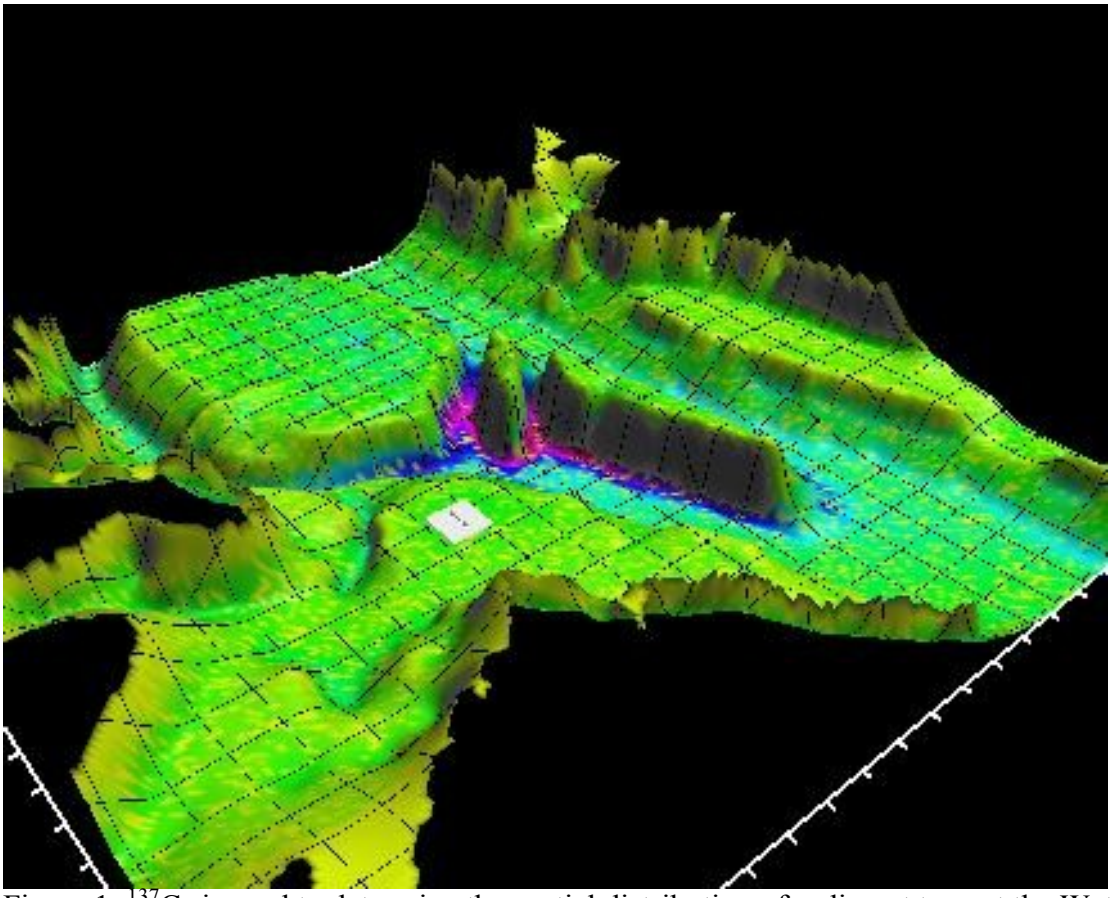


Figure 1: ^{137}Cs is used to determine the spatial distribution of sediment type at the Watts Bar Reservoir in Tennessee.

Isotopes in the food industry

1) High energy gamma rays from ^{137}Cs serve as food irradiation devices to remove bacteria and other harmful microorganisms before it is consumed by the public.